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PATTON BOGGS LLP
1801 CALFORNIA STREET
SUITE 4900
DENVER, CO 80202

EXAMINER	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/766,736
Filing Date: January 22, 2001
Appellant(s): BORTOLINI ET AL.

Jim Graziano
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed February 5th, 2007 appealing from the Office action mailed October 19th, 2006

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

GROUNDS OF REJECTION NOT ON REVIEW

The following grounds of rejection have not been withdrawn by the examiner, but they are not under review on appeal because they have not been presented for review in the appellant's brief.

Claims 6, 21-24 rejected under 35 U.S.C 112, second paragraph.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

Appellant's admitted prior art system, as disclosed in figs. 1-2 and pages 1-5 of appellant's disclosure.

9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 6, 21-24 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "said primary hubs" and "said secondary hubs" in line 1 of the last paragraph. There is insufficient antecedent basis for this limitation in the claim.

Claims 1, 6, 11-24 are rejected under 35 U.S.C. 102(b) as being anticipated by Appellant's admitted prior art system as disclosed in figure 2 of the disclosure.

With regards to **Claim 1**, Appellant's admitted prior art system (figure 2) discloses a broadband cable modem termination system for managing data transmissions through a broadband network that interconnects a plurality of end user locations (see figure 2, end user units served by passive fiber nodes) that are connected to a first side (i.e. portion of figure 2, that is on the right side of the dotted line) of the said network and a head end (111) via a cable modem that is connected on a second side (portion of figure 2, that is on the left side of the dotted line) of the network, the broadband network comprising a hierarchical network having at least two

levels (see figure 2, and page 3, lines 10-13, "Existing broadband cable network comprise a *multi-layer network* which are used to distribute program materials...from program sources that are connected to a head end, through the various layers of the multi layer network to the end user location"; it is noted that "multi layer" comprises at least two layers, further supported in the disclosure, page 3, lines 13-15), the broadband cable modem termination system comprising:

A CMTS 107 is located in passive fiber node (143), located at a first level of the hierarchical network that is *proximate* to the second side of the network (see figure 2 and page 4, lines 19-21). CMTS 107 transmits downstream data downstream from the headend 111 to the end user locations (see page 4, lines 9-15, "Thus, data transmitted....to the master headend 111-113 is forwarded....to the passive fiber nodes 141-149 and the local loops to the end user locations"). Accordingly CMTS 107 (a broadband cable modem) comprises a *downstream component* means, that is located at a first level (passive fiber node 143) of the hierarchical network, that is proximate to the second side of the network, the downstream component means comprising:

Means for exclusively converting data that is received in digital base band IP format from a source program material located at head end, to data in a RF based format (it is noted that DOCSIS IP is RF based format) for transmission to selected ones of plurality of end user locations (see page 4, lines 15-22, "data is in the form of digital base band IP transmissions from the source of the data.....to the cable modem termination system....where it is converted to DOCSIS IP data

for transmission to the end user locations", note that CMTS 107 of figure 2 is located in PFN 143)

Means for transmitting the data in the radio frequency based format (i.e. DOCSIS IP) exclusively through the network to selected ones of plurality of end user locations (see page 4, lines 11-22, "where it (data) is converted to DOCSIS IP data for *transmission* to the end user locations" and, "data transmitted....is forwared....to the passive fiber nodes 141-149 and the local loops to the end user locations");

A CMTS 108 is located in passive fiber node (144), located at a second level of the hierarchical network that is *proximate* to the second side of the network (see figure 2, and page 4). The system of figure 2 transmits upstream data received from end user locations to the head end over via CMTS 108 (see figure 2, page 3, lines 24-27, "service providers have limited the number of end user locations that can be served by each passive fiber node ...to enable the upstream channel to serve these end user locations", wherein CMTS 108 is located at the passive fiber 144 node, see page 4, lines 24-28). Accordingly CMTS 108 (a broadband cable mode) comprises an *upstream component* means, that is located at a second level (passive fiber node 144) of the hierarchical network, that is proximate to the first side of the network, and independent of the downstream component means of CMTS 107, comprising:

Means for exclusively converting data that is received in a RF based format (it is noted that DOCSIS IP is RF based format) from selected ones of plurality of end user locations, to data in digital base-band IP format for

transmission to the head end (data from CMTS 108 to head end 111 is transmitted in digital base band format as shown in figure 2),

Means for transmitting the data in digital base band IP format exclusively through out the network to the head end (see figure 2, network connection path shown for transmission of data from CMTS 108 exclusively through the network to the head end 111); and

It is noted that one particular scenario of transmission of downstream data from head end 111 to CMTS 107 requires 4 hops (data travels from 111 to 121 to 122 to 131 to 143), while data transmission of upstream data from CMTS (108) to head end 111 requires 5 hops (data travels from 108 to 134 to 135 to 122 to 123 to 111). Accordingly, the first level (143) and second level (144) are different levels in a hierarchal network, because data transmission over the first level uses a different number of network hops than data transmission over the second level in the above described scenario. Furthermore, the means for exclusively converting data from digital base band IP format to radio frequency based format (i.e. the downstream broadband cable modem component means of CMTS 107) is at a different location (passive fiber node 143) from the means for exclusively for converting data from a radio frequency based format to data in digital base band IP format (i.e. upstream broadband cable modem component means of CMTS 108). Therefore Appellant's admitted prior art system teaches all the limitations of claim 1.

With regards to **Claim 6**, Appellant's admitted prior art system further discloses a method of operating a broadband cable modem termination system for managing data

transmissions through a broadband network that interconnects a plurality of end user locations (see figure 2, end user units served by passive fiber nodes) that are connected to a first side (i.e. portion of figure 2, that is on the right side of the dotted line) of the said network and a head end (111) via a cable modem that is connected on a second side (portion of figure 2, that is on the left side of the dotted line) of the network, the broadband network comprising a hierarchical network having at least two levels (see figure 2, and page 3, lines 10-13, "Existing broadband cable network comprise a *multi-layer network* which are used to distribute program materials...from program sources that are connected to a head end, through the various layers of the multi layer network to the end user location"; it is noted that "multi layer" comprises at least two layers, further supported in the disclosure, page 3, lines 13-15), the method of operating a broadband cable modem termination system comprising:

Exclusively converting data (at CMTS 107) that is received in digital base band IP format from a source program material located at head end, to data in a RF based format (it is noted that DOCSIS IP is RF based format) for transmission to selected ones of plurality of end user locations (see page 4, lines 15-22, "data is in the form of digital base band IP transmissions from the source of the data.....to the cable modem termination system....where it is converted to DOCSIS IP data for transmission to the end user locations", note that CMTS 107 of figure 2 is located in PFN 143);

Transmitting the data in the radio frequency based format (i.e. DOCSIS IP) exclusively through the network to selected ones of plurality of end user locations (see page 4, lines 11-22, "where it (data) is converted to DOCSIS IP data for *transmission* to

the end user locations" and, "data transmitted....is forwared....to the passive fiber nodes 141-149 and the local loops to the end user locations");

Exclusively converting data (at CMTS 108) that is received in a RF based format (it is noted that DOCSIS IP is RF based format) from selected ones of plurality of end user locations, to data in digital base-band IP format for transmission to the head end (data from CMTS 108 to head end 111 is transmitted in digital base band format as shown in figure 2),

Transmitting the data in digital base band IP format exclusively through out the network to the head end (see figure 2, network connection path shown for transmission of data from CMTS 108 exclusively through the network to the head end 111);

Wherein the primary hubs (122) and the secondary hubs (134) are located at different levels (122 and 134 are not illustrated as being collocated and therefore located at different levels) in the broadband network (see fig. 2), and the step of exclusively converting data from digital base band IP format to data in a RF based format (in CMTS 107, located at PFN 143) is at a different location (note that CMTS 107 and 108 are at different locations) from the step of for exclusively converting data from a RF based format to data in a digital base-band IP format (in CMTS 108, located at PFN 144).

With regards to **Claim 11**, Appellant's prior art system as illustrated in figure 2 and disclosure in page 4, line 2- page 5 line 11 discloses a broadband CMTS for managing transmissions through a broadband network that interconnects a headend (111) that is connected to a plurality of primary hubs (122, 121) of the broadband

network, and a plurality of end user locations that are connected to a plurality of secondary hubs (131, 134) of the broadband network, the broadband network comprising

Primary hub broadband cable modem component means (downstream component of CMTS 107 at PFN 143), ***connected*** to at least one of the primary hubs (CMTS 107 is connected to primary hub 122 via secondary hub 131 and F3, see figure 2), comprising:

Means for exclusively converting data that is received in digital base band IP format from a source program material located at head end, to data in a RF based format (it is noted that DOCSIS IP is RF based format) for transmission to selected ones of plurality of end user locations (see page 4, lines 15-22, "data is in the form of digital base band IP transmissions from the source of the data.....to the cable modem termination system....where it is converted to DOCSIS IP data for transmission to the end user locations", note that CMTS 107 of figure 2 is located in PFN 143)

Means for transmitting the data in the radio frequency based format (i.e. DOCSIS IP) exclusively through the network to selected ones of plurality of end user locations (see page 4, lines 11-22, "where it (data) is converted to DOCSIS IP data for *transmission* to the end user locations" and, "data transmitted....is forwared....to the passive fiber nodes 141-149 and the local loops to the end user locations");

Secondary hub broadband cable modem component means (upstream component of CMTS 108 at PFN 144), ***connected*** to at least one of the secondary hubs (134) and independent of primary hub broadband cable modem component means (downstream component of CMTS 107), comprising:

Means for exclusively converting data that is received in a RF based format (it is noted that DOCSIS IP is RF based format) from selected ones of plurality of end user locations, to data in digital base-band IP format for transmission to the head end (data from CMTS 108 to head end 111 is transmitted in digital base band format as shown in figure 2),

Means for transmitting the data in digital base band IP format exclusively through out the network to the head end (see figure 2, network connection path shown for transmission of data from CMTS 108 exclusively through the network to the head end 111); and

Wherein the primary hubs (122) and the secondary hubs (134) are located at different levels (122 and 134 are not illustrated as being collocated and therefore located at different levels) in the broadband network (see fig. 2), and the means (in CMTS 107, located at PFN 143) for exclusively converting data from digital base band IP format to data in a RF based format is at a different location from means (in CMTS 108, located at PFN 144) for exclusively converting data from a RF based format to data in a digital base-band IP format (107 and 108 are at different locations).

With regards to **Claim 15**, Appellant's prior art system as illustrated in figure 2 and disclosure in page 4, line 2- page 5 line 11 discloses a method for managing

transmissions through a broadband network that interconnects a headend (111) that is connected to a plurality of primary hubs (122, 121) of the broadband network, and a plurality of end user locations that are connected to a plurality of secondary hubs (131, 134) of the broadband network, the broadband network comprising:

Operating a primary hub broadband cable modem component (downstream component of CMTS 107 at PFN 143) ***that is connected*** to at least one of the primary hubs (note that CMTS 107 is connected to primary hub 122 via secondary hub 131 and F3, see figure 2), comprising:

Exclusively converting data (at CMTS 107) that is received in digital base band IP format from a source program material located at head end, to data in a RF based format (it is noted that DOCSIS IP is RF based format) for transmission to selected ones of plurality of end user locations (see page 4, lines 15-22, "data is in the form of digital base band IP transmissions from the source of the data.....to the cable modem termination system....where it is converted to DOCSIS IP data for transmission to the end user locations", note that CMTS 107 of figure 2 is located in PFN 143);

Transmitting the data in the radio frequency based format (i.e. DOCSIS IP) exclusively through the network to selected ones of plurality of end user locations (see page 4, lines 11-22, "where it (data) is converted to DOCSIS IP data for *transmission* to the end user locations" and, "data transmitted....is forwared....to the passive fiber nodes 141-149 and the local loops to the end user locations");

Operating a secondary hub broadband cable modem component (upstream component of CMTS 108 at PFN 144) ***that is connected*** to at least one of the secondary hubs (134) and independent of primary hub broadband cable modem component (independent of downstream component of CMTS 107), comprising:

Exclusively converting data (at CMTS 108) that is received in a RF based format (it is noted that DOCSIS IP is RF based format) from selected ones of plurality of end user locations, to data in digital base-band IP format for transmission to the head end (data from CMTS 108 to head end 111 is transmitted in digital base band format as shown in figure 2),

Transmitting the data in digital base band IP format exclusively through out the network to the head end (see figure 2, network connection path shown for transmission of data from CMTS 108 exclusively through the network to the head end 111);

Wherein the primary hubs (122) and the secondary hubs (134) are located at different levels (122 and 134 are not illustrated as being collocated and therefore located at different levels) in the broadband network (see fig. 2), and the step of exclusively converting data from digital base band IP format to data in a RF based format (in CMTS 107, located at PFN 143) is at a different location (note that CMTS 107 and 108 are at different locations) from the step of for exclusively converting data from a RF based format to data in a digital base-band IP format (in CMTS 108, located at PFN 144).

In regards to claims 12, 16, Appellant's admitted prior at system further discloses that the plurality of end user locations are served by a passive fiber node (144) which serves to interconnect the plurality of end user locations to a secondary hub (134), the secondary broadband cable modem component means (upstream component of CMTS 108) is located in the passive fiber node (144). See fig. 2.

In regards to claims 13, 17, 20, and 23, Appellant's admitted prior at system further discloses that the means for exclusively converting data received in a RF based format (note that DOCSIS IP is RF based format) comprises means for converting radio frequency based format data from a DOCSIS IP format to a digital base band IP format data. See fig. 2.

In regards to claims 19, 22, Appellant's admitted prior at system further discloses that the plurality of end user locations are served by a passive fiber node (144) which serves to interconnect the plurality of end user locations to a secondary hub (134), the upstream broadband cable modem component means (upstream component of CMTS 108) is located in the passive fiber node (144). See fig. 2.

In regards to claims 14, 18, 21, and 24, Appellant's admitted prior at system further discloses that the means for exclusively converting data received in digital base band IP format comprises means for converting digital base band IP format to DOCSIS IP data. See fig. 2.

(10) Response to Argument

Appellants arguments set forth in the Appeal Brief have been fully considered but they are not persuasive. While the examiner recognizes the differences between the

prior art and the invention, it is the examiner's opinion that the claim language does not distninguish itself from the prior art.

With respect to claims 1 and 11 (see pages 5 and 7 of the Brief), it is noted that Appellant has provided no distinction between the characterization of "downstream broadband cable modem component means" (see Appeal Brief, page 5) and the characterization of "Primary hub broadband component means" (see Appeal Brief, page 7). Similarly, no distinctions have been between the characterization of "upstream broadband cable modem component means" (see Appeal Brief, page 5) and the characterization of "Secondary hub broadband component means" (see Appeal Brief, page 7). Accordingly "upstream broadband cable modem component means" has been treated on similar merits with "secondary hub broadband cable modem component means" and "downstream broadband cable modem component means" has been treated on similar merits with "primary hub broadband cable modem component means".

Appellant argues (see Appeal Brief, page 12) that, "the Examiner extrapolates the prior art noted by Appellant now to suggest placing bidirectional cable modem termination systems at multiple levels of the network, although there is no suggestion to do so in the prior art, since the prior art implements an either/or scheme of placing the CMTS in the cable head ends or in the primary hubs that are connected to the cable head ends". However, contrary to appellant's allegations, the examiner has not extrapolated appellant's prior art system, to show the placement of bidirectional cable modem termination systems at multiple levels, rather the teaching lies in appellant's

prior art figure 2, wherein CMTS 107 (i.e. a bidirectional CMTS) is placed at a PFN 143, and a CMTS 108 (also bidirectional CMTS) is placed in PFN 144. A particular scenario of data transmission from head end 111 to CMTS 107 utilizes 4 network hops by taking the network path 111 to 121 to 122 to 131 to 107 (4^{th} level) and data transmission from CMTS 108 to head end 101 utilizes 5 network hops by taking the network path 108 to 134 to 135 to 122 to 123 to 111 (5^{th} level). See figure 2. In the above-described scenario, the CMTS 108 is placed at the 5^{th} level from the headend while the CMTS 107 is placed at the 4^{th} level from the head end (i.e. "different levels" in the network hierarchy). Accordingly the two CMTS are located at different locations, and different levels of the network.

Appellant additionally argues (see Appeal Brief, page 12) that, "this particular placement of bidirectional device fails to address appellant's claimed unidirectional upstream and downstream broadband cable components" (also noted in comparison chart on pages 14-17 of the Appeal Brief). Examiner recognizes that each bidirectional device is capable of two unidirectional transmissions (i.e. upstream and downstream). Therefore, bi-directional CMTS 107 comprises an upstream component and a downstream component, wherein the "downstream component" of CMTS 107 reads on the claimed "downstream broadband component means" of claim 1. Similarly , bi-directional CMTS 108 also comprises an upstream component and a downstream component, wherein the "upstream component" of CMTS 108 reads on the claimed "upstream broadband component means". The examiner also notes that the limitation of "unidirectional" upstream or downstream broadband cable components have not

been recited in any of the claim language. Appellant could have amended the claim language to include the "unidirectional" limitation in an attempt to distinguish what appellant considers a novel invention over Appellant's prior art, however has chosen not to.

With respect to the limitations of "upstream broadband cable modem component" and "downstream broadband cable modem component", examiner notes that a bidirectional cable modem capable transmitting downstream data from head end to subscriber and transmitting upstream data from subscriber to head end, necessarily comprises both a downstream component and an upstream component to enable the respective downstream and upstream communications (see Appellant's disclosure page 4, lines 9-15, "Thus, data transmitted....to the master headend 111-113 is forwarded....to the passive fiber nodes 141-149 and the local loops to the end user locations" and see page 3, lines 24-27, "service providers have limited the number of end user locations that can be served by each passive fiber node ...to enable the upstream channel to serve these end user locations", wherein CMTS 108 is located at the passive fiber 144 node, see page 4, lines 24-28). The claim language (e.g. claim 1) places a downstream broadband cable modem ***component*** at a different location than an upstream broadband cable modem ***component***. Appellant's prior art system (figure 2) teaches a bi-directional cable modem in PFN 143 and 144. Therefore, each of the CMTS in PFN 143 and 144 have both of an upstream and a downstream component. Accordingly, Appellant's prior art system figure 2, comprising a CMTS 107 with a downstream component reads on the claimed "downstream cable modem component

means", and a CMTS 108 with a upstream component reads on the claimed "upstream cable modem component means".

Appellant's arguments (see Appeal Brief, page 18) stating that, "Examiner simply selects a complete cable modem termination system as an 'upstream' example and another complete cable modem termination system as a 'downstream' example" is also found unpersuasive. From the above reasoning, it can be seen that a complete CMTS has not been selected as an upstream/downstream example, but rather components that enable the upstream/downstream functionalities in each of the CMTS 107 and 108 have been selected as the upstream/downstream components example. Accordingly, "downstream cable modem component means" (downstream component of CMTS 107, enabling downstream communication) and "upstream cable modem component means" (upstream component of CMTS 108, enabling upstream communication) are two separate elements, located at different levels of the hierarchical network.

Finally, Appellant's arguments (see Appeal Brief, page 18) stating that, "the independent claims also specifically note the physical separation of operating components of ***the cable modem termination system*** as was intended" is found unpersuasive. While applicant consistently argues that the rejection fails to meet what applicant believes is a novel feature of applicant's invention i.e. unidirectional upstream and downstream components of the CMTS; "physical" separation of operating components of the CMTS, Appellant's claim language does not capture the inventive nature of what applicant believes is the novel feature. Appellant has apparently chosen to recite claim language broadly, regrettably reading on his prior art system.

For the reasons stated above, it is believed that the rejection of claims 1, 6, 11-24 should be maintained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Usha Raman

Conferees:

Scott Beliveau

Primary Examiner

Andrew Koenig

Primary Examiner

ANDREW Y. KOENIG
PRIMARY PATENT EXAMINER
ACTING SPE

CHRIS KELLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600